	Application No.	Applicant(s)
Notice of Allowability	09/994,396	KRIECHBAUM ET AL.
	Examiner	Art Unit	
	Huyen X. Vo	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *3/14/2005*.

2. ☒ The allowed claim(s) is/are *1-18*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

 a) ☒ All   b) ☐ Some*   c) ☐ None   of the:

 1. ☒ Certified copies of the priority documents have been received.

 2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

 * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

 (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

 (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

 Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

W. R. YOUNG
PRIMARY EXAMINER

DETAILED ACTION

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with Mr. Richard Hinson on 9/1/2005. The application has been amended as follows:

Claims 19-28 have been cancelled.

Claims 1-18 have been amended as follows:

1.   A method of automatically updating a word database and a pronunciation

database used by a speech recognition engine to convert speech utterances to

text, the method comprising:

taking a realization of spoken audio and a first representation that is an

allegedly true textual representation for said realization;

generating a second representation by performing speech recognition on

said realization using the word database, said second representation being a

time-based transcription of said realization;

expanding said first and second representations to convert each acronym and abbreviation contained in said first and second representations to a speech equivalent;

processing the first representation to remove all markup language tags;

generating a line-by-line output by aligning said first representation and said second representation based on timed intervals derived from the time-based transcription of said realization, each line matching a segment of said first representation and a corresponding segment of said second representation for a particular one of the timed intervals;

detecting and marking each line of output that comprises a one-word segment of said first representation and a one-word segment of said second representation;

for each marked line of output whose one-word segment of said first representation and one-word segment of said second representation are similar, automatically updating said pronunciation database to include said similar one-word segments and a corresponding portion of said spoken audio; and

for each marked line of output whose one-word segment of said first representation and one-word segment of said second representation are dissimilar, automatically updating said word database to include said dissimilar one-word segments and a corresponding portion of said spoken audio.

2.   The method of claim 1, further comprising obtaining said first

representation by optical character recognition using an optical character

recognition device.

3.   The method of claim 1, wherein the word database comprises a speaker-

dependent database used to adapt the speech recognition to a particular

speaker.

4.   The method of claim 1, further comprising comparing a recognition quality

of said speech recognition of said realization with a recognition quality of a

corresponding single-word entry existing in said pronunciation database.

5.   A method of automatically updating a word database and a pronunciation

database used by a speech recognition engine to convert speech utterances to

text, the method comprising:

       taking a realization of spoken audio and a first representation that is an

allegedly true textual representation for said realization;

       producing a second representation that is a textual representation of said

realization by performing a speech recognition on said realization using the word

database;

expanding said first and second representations to convert each acronym and abbreviation contained in said first and second representations to a speech equivalent;

generating a line-by-line output by aligning said first representation and said second representation, each line of said output comprising a segment of said first representation, a segment of said second representation, and a time indicator indicating a start time and end time of said segments;

detecting and marking each line of output that comprises a one-word segment of said first representation and a one-word segment of said second representation;

for each marked line of output whose one-word segment of said first representation and one-word segment of said second representation are similar, automatically updating said pronunciation database to include said similar one-word segments and a corresponding portion of said spoken audio; and

for each marked line of output whose one-word segment of said first representation and one-word segment of said second representation are dissimilar, automatically updating said word database to include said dissimilar one-word segments and a corresponding portion of said spoken audio.

6.   The method of claim 5, further comprising obtaining said first

representation by optical character recognition using an optical character

recognition device.

7.   The method of claim 5, wherein the word database comprises a speaker-

dependent database used to adapt the speech recognition to a particular

speaker.

8.   The method of claim 5, further comprising comparing a recognition quality

of said speech recognition of said realization with a recognition quality of a

corresponding single-word entry existing in said pronunciation database.

9.   A system for automatically updating a word database and a pronunciation

database, the system comprising:

an audio device for taking a realization of spoken audio;

an text reader for taking a first representation that is an allegedly true

textual representation of said realization;

a speech recognizer that performs a speech recognition on said realization

to generate a second representation from said realization, said second

representation being a time-based transcription of said realization;

a word database used by the speech recognizer to perform speech

recognition tasks;

an expander that expands said first and second representations to convert

each acronym and abbreviation contained in said first and second

representations to a speech equivalent;

an aligner configured to generate a line-by-line output by aligning said first

representation and said second representation based on timed intervals derived

from the time-based transcription of said second representation, each line

matching a segment of said first representation and a corresponding segment of

said second representation for a particular one of the timed intervals;

a classifier configured to detect and mark each line of output that

comprises a one-word segment of said first representation and a one-word

segment of said second representation; and

a selector that for each marked line of output whose one-word segment of

said first representation and one-word segment of said second representation

are similar, automatically updates said pronunciation database to include said

similar one-word segments and a corresponding portion of said spoken audio,

and for each marked line of output whose one-word segment of said first

representation and one-word segment of said second representation are

dissimilar, automatically updates said word database to include said dissimilar

one-word segments and a corresponding portion of said spoken audio.

10.   The system of claim 9, wherein the text reader comprises an optical

character reader.

11.   A machine-readable storage, having stored thereon a computer program

having a plurality of code sections executable by a machine for causing the

machine to perform the steps of:

taking a realization of spoken audio and a first representation that is an

allegedly true textual representation for said realization;

generating a second representation by performing speech recognition on

said realization using the word database, said second representation being a

time-based transcription of said realization;

expanding said first and second representations to convert each acronym

and abbreviation contained in said first and second representations to a speech

equivalent;

processing the first representation to remove all markup language tags;

generating a line-by-line output by aligning said first representation and

said second representation based on timed intervals derived from the time-based

transcription of said second representation, each line matching a segment of said

first representation and a corresponding segment of said second representation

for a particular one of the timed intervals;

detecting and marking each line of output that comprises a one-word

segment of said first representation and a one-word segment of said second

representation;

for each marked line of output whose one-word segment of said first

representation and one-word segment of said second representation are similar,

automatically updating a pronunciation database to include said similar one-word

segments and a corresponding portion of said spoken audio; and

for each marked line of output whose one-word segment of said first

representation and one-word segment of said second representation are

dissimilar, automatically updating a word database to include said dissimilar one-

word segments and a corresponding portion of said spoken audio.

12.   The machine-readable storage of claim 11, further comprising a machine-

executable code section to perform the step of obtaining said first representation

by optical character recognition using an optical character recognition device.

13.   The machine-readable storage of claim 11, wherein the word database

comprises a speaker-dependent database used to adapt the speech recognition

to a particular speaker.

14.   The machine-readable storage of claim 11, further comprising a machine-executable code section to perform the step of comparing a recognition quality of said speech recognition of said realization with a recognition quality of a corresponding single-word entry existing in said pronunciation database.

15.   A machine-readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

taking a realization of spoken audio and a first representation that is an allegedly true textual representation for said realization;

producing a second representation that is a textual representation of said realization by performing a speech recognition on said realization using the word database;

expanding said first and second representations to convert each acronym and abbreviation contained in said first and second representations to a speech equivalent;

generating a line-by-line output by aligning said first representation and said second representation, each line of said output comprising a segment of said first representation, a segment of said second representation, and a time indicator indicating a start time and end time of said segments;

detecting and marking each line of output that comprises a one-word

segment of said first representation and a one-word segment of said second

representation;

for each marked line of output whose one-word segment of said first

representation and one-word segment of said second representation are similar,

automatically updating a pronunciation database to include said similar one-word

segments and a corresponding portion of said spoken audio; and

for each marked line of output whose one-word segment of said first

representation and one-word segment of said second representation are

dissimilar, automatically updating a word database to include said dissimilar one-

word segments and a corresponding portion of said spoken audio.

16.   The machine-readable storage of claim 15, further comprising a machine-

executable code section to perform the step of obtaining said first representation

by optical character recognition using an optical character recognition device.

17.   The machine-readable storage of claim 15, wherein the word database

comprises a speaker-dependent database used to adapt the speech recognition

to a particular speaker.

18.   The machine-readable storage of claim 15, further comprising a machine-executable code section to perform the step of comparing a recognition quality of said speech recognition of said realization with a recognition quality of a corresponding single-word entry existing in said pronunciation database.

Allowable Subject Matter

2.   Claims 1-18 are allowed over prior art of record. The following is an examiner's statement of reasons for allowance: Glickman et al. (US 6076059) disclose a method in that text segments of a text file are aligned with audio segments of an audio file. The text file includes written words, and the audio file includes spoken words. A vocabulary and language models are generated from the text segment. A word list is recognized from the audio segment using the vocabulary and language model. The word list is aligned with the text segment, and corresponding anchors are chosen in the word list and text segment. Using the anchors, the text segment and the audio segment are partitioned into unaligned and aligned segments according to the anchors. These steps are repeated for any unaligned segments until a termination condition is reached (see reference). Glickman et al. fail to specifically disclose the step of expanding acronyms and abbreviations and removing markup language tags before aligning the first representation against the second representation. Glickman et al. also fail specifically disclose that for each marked line of output whose one-word segment of said first representation and one-word segment of said second representation are dissimilar, automatically updating a word database to include said dissimilar one-word segments

and a corresponding portion of said spoken audio. Furthermore, it would have not been obvious to one of ordinary skill in the art at the time of invention to modify Glickman et al. in order to obtain the claimed invention. Therefore, claims 1-18 are allowed over prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen X. Vo whose telephone number is 571-272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

9/6/2005   HXV

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W. R. YOUNG
PRIMARY EXAMINER